

CLAIMS

1. An apparatus for punching, stamping and/or shaping flat elements (29) comprising a base body (1) with a table (18) and a support (26) for the flat element (29), and a base plate (17) which supports a tool punch (24) and which to carry out the working process can be moved by means of a drive (4, 5) towards the support (26) into a working station (II) for engagement of the tool punch (24) with the support (26) and away from the support (26), characterised in that coupled between the drive (4, 5) and the base plate (17) are transmission means (9, 7; 35; 43; 46) which move the base plate (17) from a rest position (I) in which the tool punch (24) is out of engagement with the support (26), substantially without a pressure build-up, to shortly before the working position (II), and then move it into the working positions (II) over a short distance while producing a high pressure between the base plate (17) and the flat element (29) and upon further activity of the drive (4, 5) move the base plate (17) into the rest position (I, III) again in the reverse direction of movement over regions substantially without a pressure build-up.
2. Apparatus as set forth in claim 1 characterised in that the axis (5; 45) of the drive (4, 5) is perpendicular to the axis of the tool punch (24).
3. Apparatus as set forth in claim 1 characterised in that the axis (36) of the drive (4, 5) is parallel to the axis of the tool punch (24).
4. Apparatus as set forth in one of claims 1 through 3 characterised in that the transmission means (9, 7; 35; 40; 46) have at least one rotary lever (9) pivotable about a stationary pivot point (11, 45).
5. Apparatus as set forth in one of claims 1, 2 and 4 characterised in that the linear direction of movement (19, 20) of the base plate (17) is predetermined by a column guide means (21) operative between the base body (1) and the base plate (17) and that the drive (4, 5) has a drive means (5) oscillating linearly on the axis thereof.
6. Apparatus as set forth in one of claims 1, 2, 4 and 5 characterised in that a long rotary lever (9) is pivotable about a pivot point (11) fixed to the base body (1) and is coupled at its one end by way of an elbow lever pivot (13) to one end of a short pivot lever (14) whose other end is coupled to the base plate (17) by way of an elbow lever mounting (15).
7. Apparatus as set forth in one of claims 1 through 3 characterised in that mounted rotatably to the base plate (17) is at least one roller (33) which is guided running against at least

one cam (31) which at at least one location (A) is of a configuration with a component parallel to the axis (25) of the tool punch (24).

8. Apparatus as set forth in one of claims 1 through 3 and 7 characterised in that the cam (31) is provided at the periphery of a rotatably driven cylinder (35) as the transmission means.

9. Apparatus as set forth in one of claims 1 through 3, 7 and 8 characterised in that the cylinder (35) is provided with a coaxially fixed pinion (39) which is driven by meshing engagement with an oscillatingly movable rack (38).

10. Apparatus as set forth in one of claims 1, 2, 4, 5 and 7 characterised in that the cam (31) is provided on the rotary lever (9).

11. Apparatus as set forth in one of claims 1 through 3 and 7 characterised in that the cam (31) is arranged on an oscillatingly movable, rectilinear cam bar (40).

12. Apparatus as set forth in one of claims 1 through 3 and 7 characterised in that the axis (45) of the rotary lever (9) extends perpendicularly to the axis (25) of the tool punch (24) which is movable by way of the base plate (17) with a translatory and rotational movement relative to the rotary lever (9).